

Fig. 1

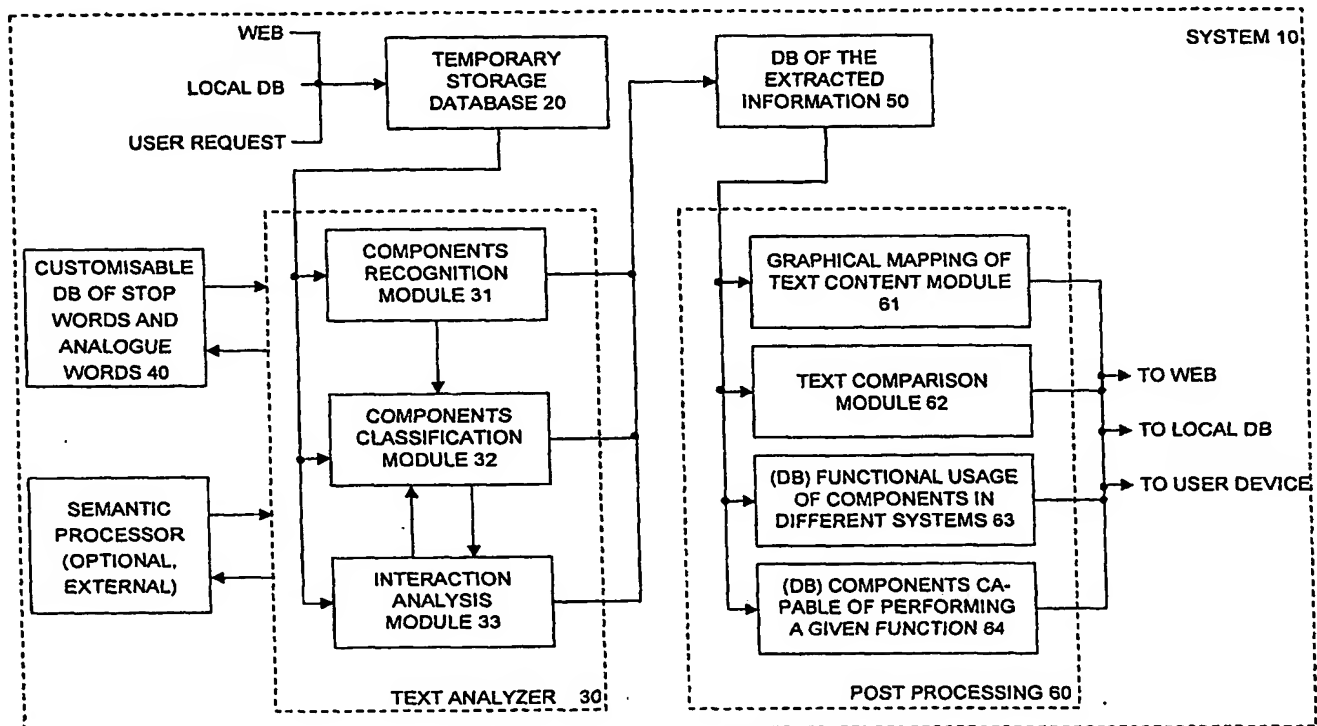


Fig. 2

2/8

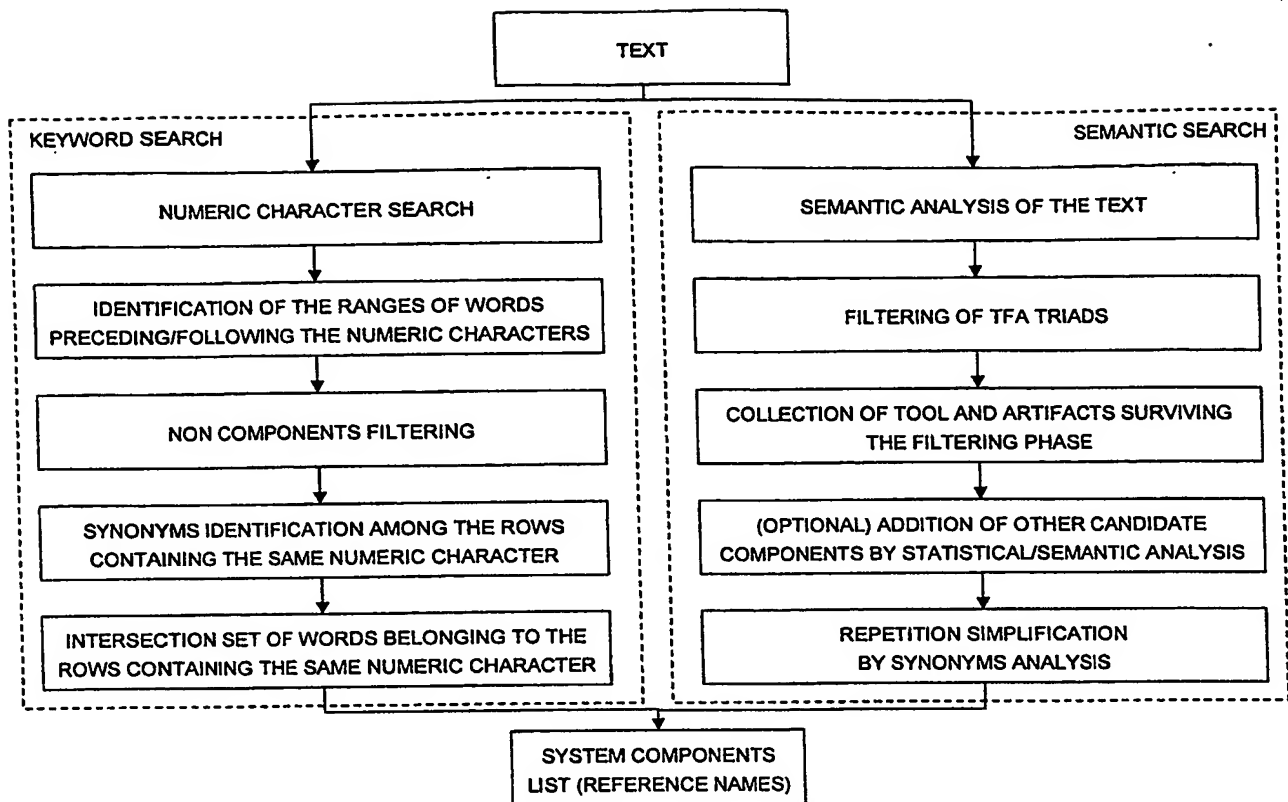


Fig. 4

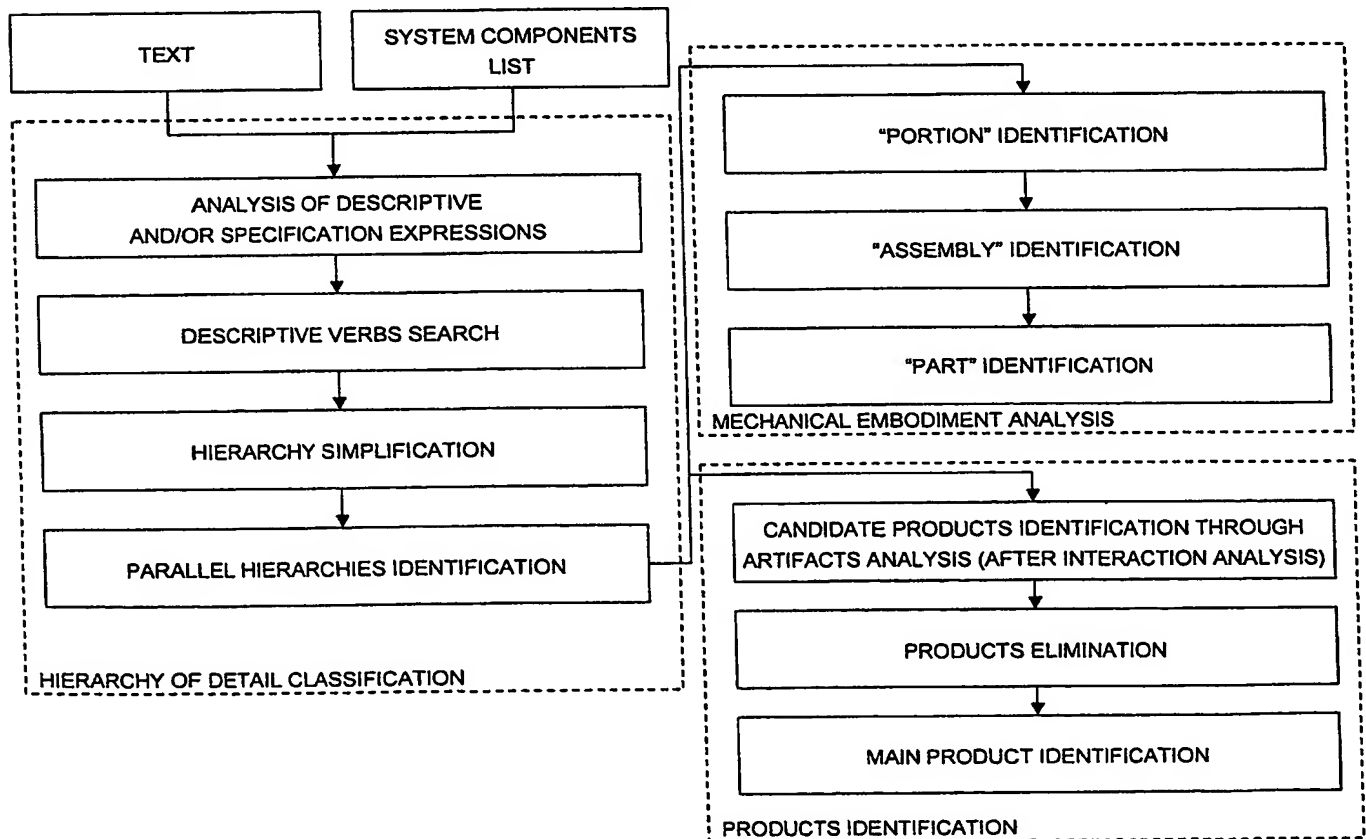


Fig. 5

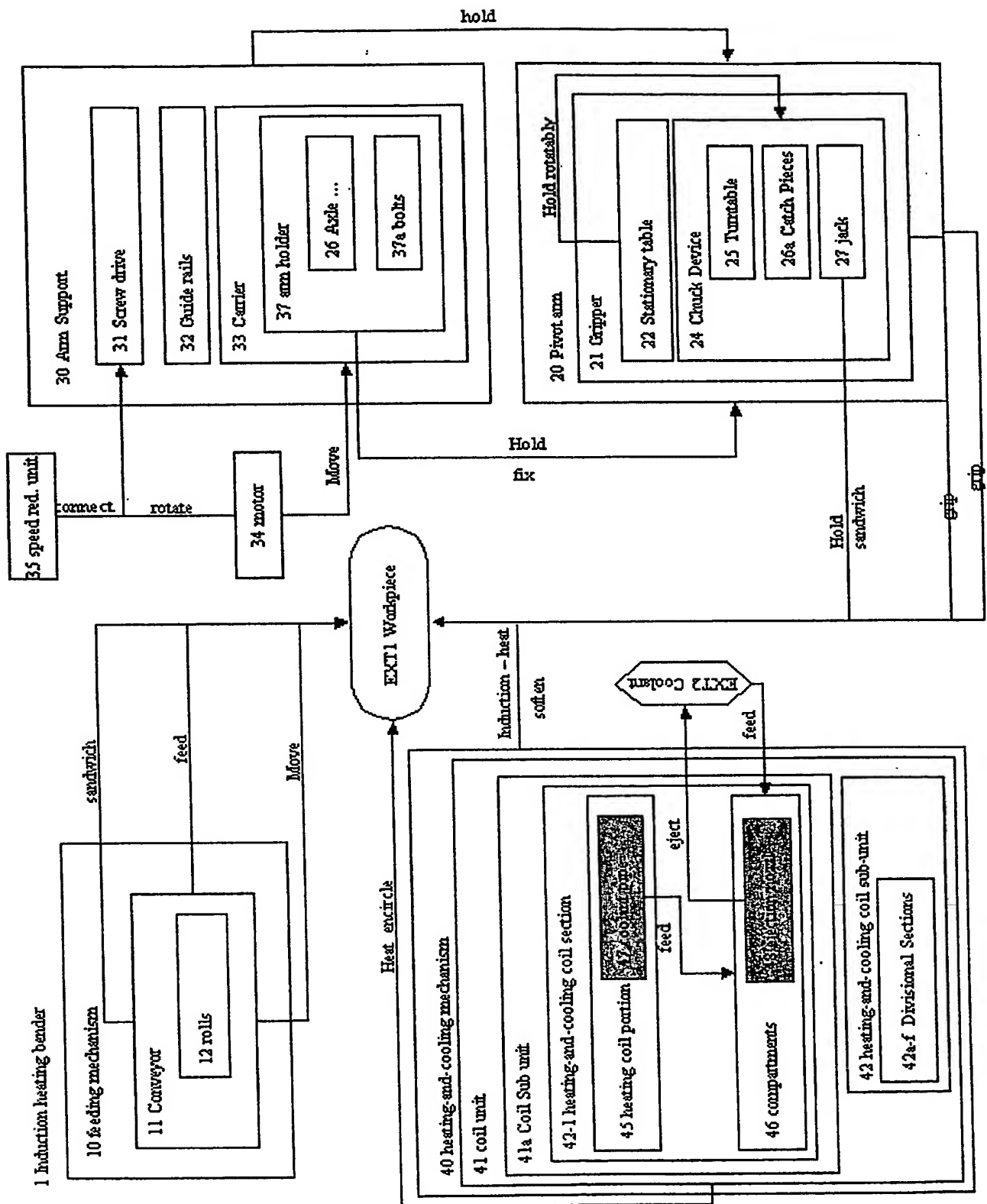


Fig. 6

Component	DL	SuperComponent
1 induction-heating bender	0	-
10 feeding mechanism	1	1 induction-heating bender
11 conveyor	2	10 feeding mechanism
12 rolls	3	11 conveyor
20 pivot arm	1	1 induction-heating bender
21 gripper	2	20 pivot arm
22 stationary table	3	21 gripper
23 stud pin	4	24 chuck device
24 chuck device	3	21 gripper
25 turntable of the gripper 21	4	24 chuck device
26a catch pieces	4	24 chuck device
27 jack	4	24 chuck device
30 arm support	1	1 induction-heating bender
31 screw drive	2	30 arm support
32 guide rails	2	30 arm support
33 carrier	2	30 arm support
34 motor	-	-
35 speed-reduction unit	-	-
36 axle or pivot of the square holder 37	4	37 holder
37a fastening bolts of the square holder 37	4	37 holder
37 holder	3	33 carrier
40 heating-and-cooling mechanism	1	1 induction-heating bender
41 coil unit	2	40 heating-and-cooling mechanism
41a coil sub-unit	0	-
42-1 heating-and-cooling coil section	1	41a coil sub-unit
42a-f divisional sections	1	42 heating-and-cooling coil sub-unit
42 heating-and-cooling coil sub-unit	0	-
43 transformer	-	-
44 support arm	-	-
45 heating coil portion	2	42-1 heating-and-cooling coil section
46 compartment	2	42-1 heating-and-cooling coil section
47 coolant pipe	3	46 compartment
48 coolant ejection nozzle	3	45 heating coil portion
48a circular apertures	-	-
48b elongated slots	-	-
50 heating-and-cooling mechanism	-	-
51 square pipe	-	-
52 coil unit	-	-
53 heating-and-cooling coil unit	-	-
60 heating-and-cooling mechanism	-	-
61 triangular pipe	-	-
62 coil unit	-	-
63 heating-and-cooling coil unit	-	-

Fig. 7

Secondary Products	Tool-Field-Artifact	MPPV1	MPPV2
EXT1 Workpiece	conveyor – sandwich – workpiece	∞	85
	conveyor – feed – workpiece		
	conveyor – move – workpiece		
	heating & cooling mechanism – heat – workpiece		
	heating & cooling mechanism – soften – workpiece		
	coil unit – heat – workpiece		
	jack – hold – workpiece		
	jack – sandwich – workpiece		
	gripper – grip – workpiece		
	pivot arm – grip – workpiece		
Pivot arm	arm support – hold – pivot arm	3	30
	arm holder – fix – pivot arm		
	arm holder – hold – pivot arm		

Fig. 8

Tool	Field	Artifact
10 feeding mechanism	feed	EXT1 workpiece
11 conveyor	feed	EXT1 workpiece
11 conveyor	move	EXT1 workpiece
11 conveyor	sandwich	EXT1 workpiece
30 arm support	hold	20 pivot arm
37 holder	fix	20 pivot arm
37 holder	hold	20 pivot arm
20 pivot arm	grip	EXT1 workpiece
21 gripper	grip	EXT1 workpiece
27 jack	hold	EXT1 workpiece
27 jack	sandwich	EXT1 workpiece
34 motor	rotate	31 screw drive
35 speed-reduction unit	connect	31 screw drive
34 motor	move	33 carrier
40 heating-and-cooling mechanism	induction-heat	EXT1 workpiece
40 heating-and-cooling mechanism	soften	EXT1 workpiece
41 coil unit	heat	EXT1 workpiece
44 support arm	support	41 coil unit
41 coil unit	encircle	EXT1 workpiece
47 coolant pipe	feed	46 compartment
EXT2 coolant	feed	46 compartment
48 coolant ejection nozzle	eject	EXT2 coolant
48a circular apertures	eject	EXT2 coolant
48b elongated slots	eject	EXT2 coolant
22 stationary table	hold rotatably	24 chuck device

Fig. 9

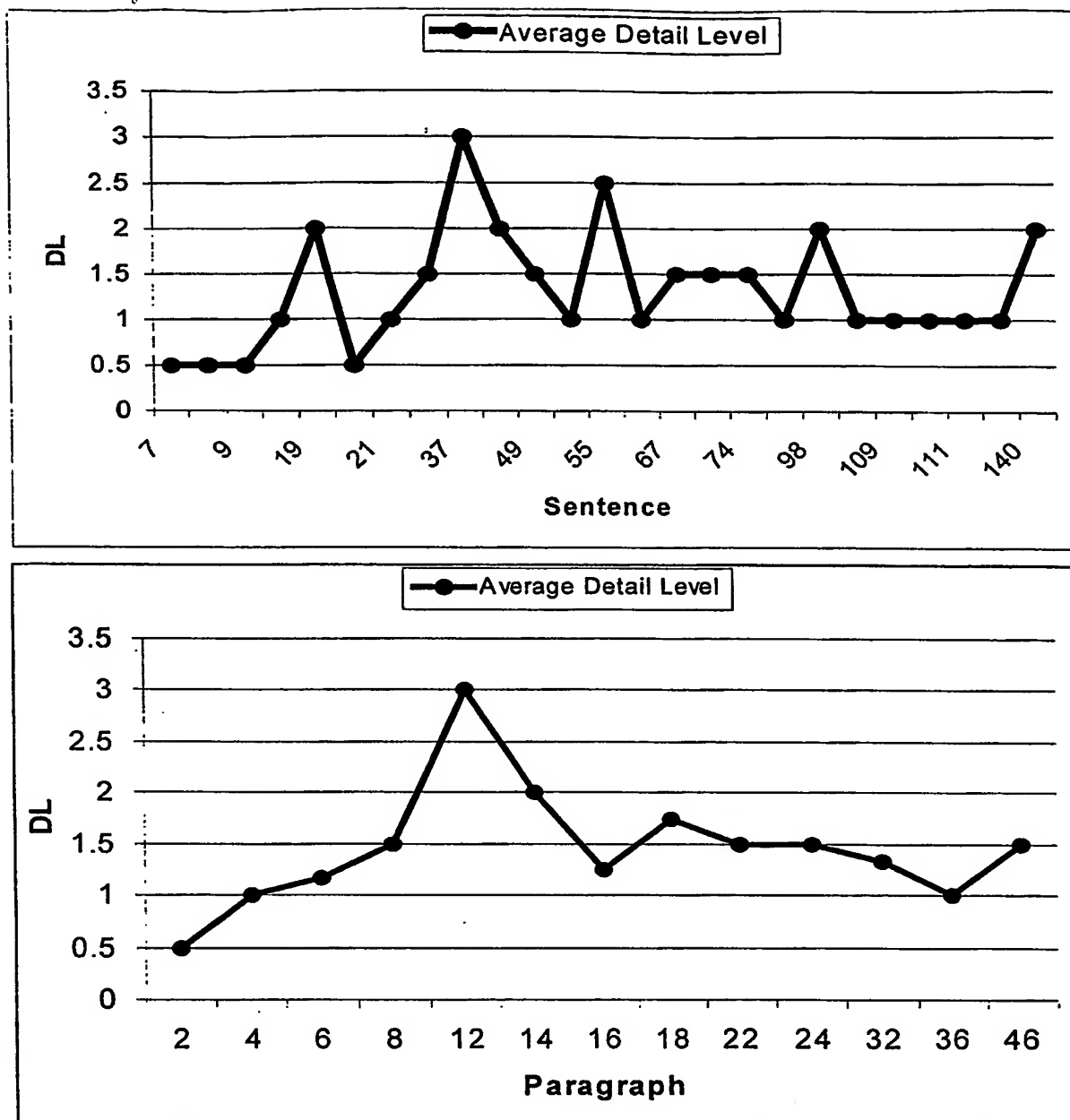


Fig. 10